

13/1



SEQUENCE LISTING

<110> Faustus Forschungs Cie. Translational Cancer Research GmbH
<120> Antisense oligonucleotides for treating proliferating cells
<130> PA32470US-01938
<140> US/09/700,906
<141> 2001-02-26
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Arg His Pro Lys Thr Lys Glu Lys Ala Gln Pro Leu Glu Asp Leu Ala			
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ggc tgg aaa gag ctc ttc cag aca cca gta tgc act gac aag ccc acg			4648
Gly Trp Lys Glu Leu Phe Gln Thr Pro Val Cys Thr Asp Lys Pro Thr			
1470	1475	1480	
act cac gag aaa act acc aaa ata gcc tgc aga tca caa cca gac cca			4696

Thr His Glu Lys Thr Thr Lys Ile Ala Cys Arg Ser Gln Pro Asp Pro	
1485	1490 1495 1500
gtg gac aca cca aca agc tcc aag cca cag tcc aag aga agt ctc agg	4744
Val Asp Thr Pro Thr Ser Ser Lys Pro Gln Ser Lys Arg Ser Leu Arg	
	1505 1510 1515
aaa gtg gac gta gaa gaa gaa ttc ttc gca ctc agg aaa cga aca cca	4792
Lys Val Asp Val Glu Glu Glu Phe Phe Ala Leu Arg Lys Arg Thr Pro	
	1520 1525 1530
tca gca ggc aaa gcc atg cac aca ccc aaa cca gca gta agt ggt gag	4840
Ser Ala Gly Lys Ala Met His Thr Pro Lys Pro Ala Val Ser Gly Glu	
	1535 1540 1545
aaa aac atc tac gca ttt atg gga act cca gtg cag aaa ctg gac ctg	4888
Lys Asn Ile Tyr Ala Phe Met Gly Thr Pro Val Gln Lys Leu Asp Leu	
	1550 1555 1560
aca gag aac tta act ggc agc aag aga cgg cta caa act cct aag gaa	4936
Thr Glu Asn Leu Thr Gly Ser Lys Arg Arg Leu Gln Thr Pro Lys Glu	
	1565 1570 1575 1580
aag gcc cag gct cta gaa gac ctg gct ggc ttt aaa gag ctc ttc cag	4984
Lys Ala Gln Ala Leu Glu Asp Leu Ala Gly Phe Lys Glu Leu Phe Gln	
	1585 1590 1595
aca cga ggt cac act gag gaa tca atg act aac gat aaa act gcc aaa	5032
Thr Arg Gly His Thr Glu Glu Ser Met Thr Asn Asp Lys Thr Ala Lys	
	1600 1605 1610
gta gcc tgc aaa tct tca caa cca gac cta gac aaa aac cca gca agc	5080
Val Ala Cys Lys Ser Ser Gln Pro Asp Leu Asp Lys Asn Pro Ala Ser	
	1615 1620 1625
tcc aag cga cgg ctc aag aca tcc ctg ggg aaa gtg ggc gtg aaa gaa	5128
Ser Lys Arg Arg Leu Lys Thr Ser Leu Gly Lys Val Gly Val Lys Glu	
	1630 1635 1640
gag ctc cta gca gtt ggc aag ctc aca cag aca tca gga gag act aca	5176
Glu Leu Leu Ala Val Gly Lys Leu Thr Gln Thr Ser Gly Glu Thr Thr	
	1645 1650 1655 1660
cac aca cac aca gag cca aca gga gat ggt aag agc atg aaa gca ttt	5224
His Thr His Thr Glu Pro Thr Gly Asp Gly Lys Ser Met Lys Ala Phe	
	1665 1670 1675
atg gag tct cca aag cag atc tta gac tca gca gca agt cta act ggc	5272
Met Glu Ser Pro Lys Gln Ile Leu Asp Ser Ala Ala Ser Leu Thr Gly	
	1680 1685 1690

agc aag agg cag ctg aga act cct aag gga aag tct gaa gtc cct gaa	5320
Ser Lys Arg Gln Leu Arg Thr Pro Lys Gly Lys Ser Glu Val Pro Glu	
1695 1700 1705	
gac ctg gcc ggc ttc atc gag ctc ttc cag aca cca agt cac act aag	5368
Asp Leu Ala Gly Phe Ile Glu Leu Phe Gln Thr Pro Ser His Thr Lys	
1710 1715 1720	
gaa tca atg act aat gaa aaa act acc aaa gta tcc tac aga gct tca	5416
Glu Ser Met Thr Asn Glu Lys Thr Thr Lys Val Ser Tyr Arg Ala Ser	
1725 1730 1735 1740	
cag cca gac cta gtg gac acc cca aca agc tcc aag cca cag ccc aag	5464
Gln Pro Asp Leu Val Asp Thr Pro Thr Ser Ser Lys Pro Gln Pro Lys	
1745 1750 1755	
aga agt ctc agg aaa gca gac act gaa gaa gaa ttt tta gca ttt agg	5512
Arg Ser Leu Arg Lys Ala Asp Thr Glu Glu Glu Phe Leu Ala Phe Arg	
1760 1765 1770	
aaa caa acg cca tca gca ggc aaa gcc atg cac aca ccc aaa cca gca	5560
Lys Gln Thr Pro Ser Ala Gly Lys Ala Met His Thr Pro Lys Pro Ala	
1775 1780 1785	
gta ggt gaa gag aaa gac atc aac acg ttt ttg gga act cca gtg cag	5608
Val Gly Glu Glu Lys Asp Ile Asn Thr Phe Leu Gly Thr Pro Val Gln	
1790 1795 1800	
aaa ctg gac cag cca gga aat tta cct ggc agc aat aga cgg cta caa	5656
Lys Leu Asp Gln Pro Gly Asn Leu Pro Gly Ser Asn Arg Arg Leu Gln	
1805 1810 1815 1820	
act cgt aag gaa aag gcc cag gct cta gaa gaa ctg act ggc ttc aga	5704
Thr Arg Lys Glu Lys Ala Gln Ala Leu Glu Glu Leu Thr Gly Phe Arg	
1825 1830 1835	
gag ctt ttc cag aca cca tgc act gat aac ccc aca gct gat gag aaa	5752
Glu Leu Phe Gln Thr Pro Cys Thr Asp Asn Pro Thr Ala Asp Glu Lys	
1840 1845 1850	
act acc aaa aaa ata ctc tgc aaa tct ccg caa tca gac cca gcg gac	5800
Thr Thr Lys Lys Ile Leu Cys Lys Ser Pro Gln Ser Asp Pro Ala Asp	
1855 1860 1865	
acc cca aca aac aca aag caa cgg ccc aag aga agc ctc aag aaa gca	5848
Thr Pro Thr Asn Thr Lys Gln Arg Pro Lys Arg Ser Leu Lys Lys Ala	
1870 1875 1880	
gac gta gag gaa gaa ttt tta gca ttc agg aaa cta aca cca tca gca	5896
Asp Val Glu Glu Glu Phe Leu Ala Phe Arg Lys Leu Thr Pro Ser Ala	
1885 1890 1895 1900	

ggc aaa gcc atg cac acg cct aaa gca gca gta ggt gaa gag aaa gac	5944
Gly Lys Ala Met His Thr Pro Lys Ala Ala Val Gly Glu Glu Lys Asp	
1905 1910 1915	
atc aac aca ttt gtg ggg act cca gtg gag aaa ctg gac ctg cta gga	5992
Ile Asn Thr Phe Val Gly Thr Pro Val Glu Lys Leu Asp Leu Leu Gly	
1920 1925 1930	
aat tta cct ggc agc aag aga cgg cca caa act cct aaa gaa aag gcc	6040
Asn Leu Pro Gly Ser Lys Arg Arg Pro Gln Thr Pro Lys Glu Lys Ala	
1935 1940 1945	
aag gct cta gaa gat ctg gct ggc ttc aaa gag ctc ttc cag aca cca	6088
Lys Ala Leu Glu Asp Leu Ala Gly Phe Lys Glu Leu Phe Gln Thr Pro	
1950 1955 1960	
ggt cac act gag gaa tca atg acc gat gac aaa atc aca gaa gta tcc	6136
Gly His Thr Glu Glu Ser Met Thr Asp Asp Lys Ile Thr Glu Val Ser	
1965 1970 1975 1980	
tgc aaa tct cca caa cca gac cca gtc aaa acc cca aca agc tcc aag	6184
Cys Lys Ser Pro Gln Pro Asp Pro Val Lys Thr Pro Thr Ser Ser Lys	
1985 1990 1995	
caa cga ctc aag ata tcc ttg ggg aaa gta ggt gtg aaa gaa gag gtc	6232
Gln Arg Leu Lys Ile Ser Leu Gly Lys Val Gly Val Lys Glu Glu Val	
2000 2005 2010	
cta cca gtc ggc aag ctc aca cag acg tca ggg aag acc aca cag aca	6280
Leu Pro Val Gly Lys Leu Thr Gln Thr Ser Gly Lys Thr Thr Gln Thr	
2015 2020 2025	
cac aga gag aca gca gga gat gga aag agc atc aaa gcg ttt aag gaa	6328
His Arg Glu Thr Ala Gly Asp Gly Lys Ser Ile Lys Ala Phe Lys Glu	
2030 2035 2040	
tct gca aag cag atg ctg gac cca gca aac tat gga act ggg atg gag	6376
Ser Ala Lys Gln Met Leu Asp Pro Ala Asn Tyr Gly Thr Gly Met Glu	
2045 2050 2055 2060	
agg tgg cca aga aca cct aag gaa gag gcc caa tca cta gaa gac ctg	6424
Arg Trp Pro Arg Thr Pro Lys Glu Glu Ala Gln Ser Leu Glu Asp Leu	
2065 2070 2075	
gcc ggc ttc aaa gag ctc ttc cag aca cca gac cac act gag gaa tca	6472
Ala Gly Phe Lys Glu Leu Phe Gln Thr Pro Asp His Thr Glu Glu Ser	
2080 2085 2090	
aca act gat gac aaa act acc aaa ata gcc tgc aaa tct cca cca cca	6520
Thr Thr Asp Asp Lys Thr Thr Lys Ile Ala Cys Lys Ser Pro Pro Pro	

2095	2100	2105	
gaa tca atg gac act cca aca agc aca agg agg cgg ccc aaa aca cct Glu Ser Met Asp Thr Pro Thr Ser Thr Arg Arg Arg Pro Lys Thr Pro 2110 2115 2120			6568
ttg ggg aaa agg gat ata gtg gaa gag ctc tca gcc ctg aag cag ctc Leu Gly Lys Arg Asp Ile Val Glu Glu Leu Ser Ala Leu Lys Gln Leu 2125 2130 2135 2140			6616
aca cag acc aca cac aca gac aaa gta cca gga gat gag gat aaa ggc Thr Gln Thr Thr His Thr Asp Lys Val Pro Gly Asp Glu Asp Lys Gly 2145 2150 2155			6664
atc aac gtg ttc agg gaa act gca aaa cag aaa ctg gac cca gca gca Ile Asn Val Phe Arg Glu Thr Ala Lys Gln Lys Leu Asp Pro Ala Ala 2160 2165 2170			6712
agt gta act ggt agc aag agg cag cca aga act cct aag gga aaa gcc Ser Val Thr Gly Ser Lys Arg Gln Pro Arg Thr Pro Lys Gly Lys Ala 2175 2180 2185			6760
caa ccc cta gaa gac ttg gct ggc ttg aaa gag ctc ttc cag aca cca Gln Pro Leu Glu Asp Leu Ala Gly Leu Lys Glu Leu Phe Gln Thr Pro 2190 2195 2200			6808
gta tgc act gac aag ccc acg act cac gag aaa act acc aaa ata gcc Val Cys Thr Asp Lys Pro Thr Thr His Glu Lys Thr Thr Lys Ile Ala 2205 2210 2215 2220			6856
tgc aga tct cca caa cca gac cca gtg ggt acc cca aca atc ttc aag Cys Arg Ser Pro Gln Pro Asp Pro Val Gly Thr Pro Thr Ile Phe Lys 2225 2230 2235			6904
cca cag tcc aag aga agt ctc agg aaa gca gac gta gag gaa gaa tcc Pro Gln Ser Lys Arg Ser Leu Arg Lys Ala Asp Val Glu Glu Glu Ser 2240 2245 2250			6952
tta gca ctc agg aaa cga aca cca tca gta ggg aaa gct atg gac aca Leu Ala Leu Arg Lys Arg Thr Pro Ser Val Gly Lys Ala Met Asp Thr 2255 2260 2265			7000
ccc aaa cca gca gga ggt gat gag aaa gac atg aaa gca ttt atg gga Pro Lys Pro Ala Gly Gly Asp Glu Lys Asp Met Lys Ala Phe Met Gly 2270 2275 2280			7048
act cca gtg cag aaa ttg gac ctc cca gga aat tta cct ggc agc aaa Thr Pro Val Gln Lys Leu Asp Leu Pro Gly Asn Leu Pro Gly Ser Lys 2285 2290 2295 2300			7096
aga tgg cca caa act cct aag gaa aag gcc cag gct cta gaa gac ctg			7144

Arg Trp Pro Gln Thr Pro Lys Glu Lys Ala Gln Ala Leu Glu Asp Leu	
2305 2310 2315	
gct ggc ttc aaa gag ctc ttc cag aca cca ggc act gac aag ccc acg	7192
Ala Gly Phe Lys Glu Leu Phe Gln Thr Pro Gly Thr Asp Lys Pro Thr	
2320 2325 2330	
act gat gag aaa act acc aaa ata gcc tgc aaa tct cca caa cca gac	7240
Thr Asp Glu Lys Thr Thr Lys Ile Ala Cys Lys Ser Pro Gln Pro Asp	
2335 2340 2345	
cca gtg gac acc cca gca agc aca aag caa cgg ccc aag aga aac ctc	7288
Pro Val Asp Thr Pro Ala Ser Thr Lys Gln Arg Pro Lys Arg Asn Leu	
2350 2355 2360	
agg aaa gca gac gta gag gaa gaa ttt tta gca ctc agg aaa cga aca	7336
Arg Lys Ala Asp Val Glu Glu Glu Phe Leu Ala Leu Arg Lys Arg Thr	
2365 2370 2375 2380	
cca tca gca ggc aaa gcc atg gac acc cca aaa cca gca gta agt gat	7384
Pro Ser Ala Gly Lys Ala Met Asp Thr Pro Lys Pro Ala Val Ser Asp	
2385 2390 2395	
gag aaa aat atc aac aca ttt gtg gaa act cca gtg cag aaa ctg gac	7432
Glu Lys Asn Ile Asn Thr Phe Val Glu Thr Pro Val Gln Lys Leu Asp	
2400 2405 2410	
ctg cta gga aat tta cct ggc agc aag aga cag cca cag act cct aag	7480
Leu Leu Gly Asn Leu Pro Gly Ser Lys Arg Gln Pro Gln Thr Pro Lys	
2415 2420 2425	
gaa aag gct gag gct cta gag gac ctg gtt ggc ttc aaa gaa ctc ttc	7528
Glu Lys Ala Glu Ala Leu Glu Asp Leu Val Gly Phe Lys Glu Leu Phe	
2430 2435 2440	
cag aca cca ggt cac act gag gaa tca atg act gat gac aaa atc aca	7576
Gln Thr Pro Gly His Thr Glu Glu Ser Met Thr Asp Asp Lys Ile Thr	
2445 2450 2455 2460	
gaa gta tcc tgt aaa tct cca cag cca gag tca ttc aaa acc tca aga	7624
Glu Val Ser Cys Lys Ser Pro Gln Pro Glu Ser Phe Lys Thr Ser Arg	
2465 2470 2475	
agc tcc aag caa agg ctc aag ata ccc ctg gtg aaa gtg gac atg aaa	7672
Ser Ser Lys Gln Arg Leu Lys Ile Pro Leu Val Lys Val Asp Met Lys	
2480 2485 2490	
gaa gag ccc cta gca gtc agc aag ctc aca cgg aca tca ggg gag act	7720
Glu Glu Pro Leu Ala Val Ser Lys Leu Thr Arg Thr Ser Gly Glu Thr	
2495 2500 2505	

acg caa aca cac aca gag cca aca gga gat agt aag agc atc aaa gcg	7768
Thr Gln Thr His Thr Glu Pro Thr Gly Asp Ser Lys Ser Ile Lys Ala	
2510 2515 2520	
ttt aag gag tct cca aag cag atc ctg gac cca gca gca agt gta act	7816
Phe Lys Glu Ser Pro Lys Gln Ile Leu Asp Pro Ala Ala Ser Val Thr	
2525 2530 2535 2540	
ggg agc agg agg cag ctg aga act cgt aag gaa aag gcc cgt gct cta	7864
Gly Ser Arg Arg Gln Leu Arg Thr Arg Lys Glu Lys Ala Arg Ala Leu	
2545 2550 2555	
gaa gac ctg gtt gac ttc aaa gag ctc ttc tca gca cca ggt cac act	7912
Glu Asp Leu Val Asp Phe Lys Glu Leu Phe Ser Ala Pro Gly His Thr	
2560 2565 2570	
gaa gag tca atg act att gac aaa aac aca aaa att ccc tgc aaa tct	7960
Glu Glu Ser Met Thr Ile Asp Lys Asn Thr Lys Ile Pro Cys Lys Ser	
2575 2580 2585	
ccc cca cca gaa cta aca gac act gcc acg agc aca aag aga tgc ccc	8008
Pro Pro Pro Glu Leu Thr Asp Thr Ala Thr Ser Thr Lys Arg Cys Pro	
2590 2595 2600	
aag aca cgt ccc agg aaa gaa gta aaa gag gag ctc tca gca gtt gag	8056
Lys Thr Arg Pro Arg Lys Glu Val Lys Glu Glu Leu Ser Ala Val Glu	
2605 2610 2615 2620	
agg ctc acg caa aca tca ggg caa agc aca cac aca cac aaa gaa cca	8104
Arg Leu Thr Gln Thr Ser Gly Gln Ser Thr His Thr His Lys Glu Pro	
2625 2630 2635	
gca agc ggt gat gag ggc atc aaa gta ttg aag caa cgt gca aag aag	8152
Ala Ser Gly Asp Glu Gly Ile Lys Val Leu Lys Gln Arg Ala Lys Lys	
2640 2645 2650	
aaa cca aac cca gta gaa gag gaa ccc agc agg aga agg cca aga gca	8200
Lys Pro Asn Pro Val Glu Glu Glu Pro Ser Arg Arg Arg Pro Arg Ala	
2655 2660 2665	
cct aag gaa aag gcc caa ccc ctg gaa gac ctg gcc ggc ttc aca gag	8248
Pro Lys Glu Lys Ala Gln Pro Leu Glu Asp Leu Ala Gly Phe Thr Glu	
2670 2675 2680	
ctc tct gaa aca tca ggt cac act cag gaa tca ctg act gct ggc aaa	8296
Leu Ser Glu Thr Ser Gly His Thr Gln Glu Ser Leu Thr Ala Gly Lys	
2685 2690 2695 2700	
gcc act aaa ata ccc tgc gaa tct ccc cca cta gaa gtg gta gac acc	8344
Ala Thr Lys Ile Pro Cys Glu Ser Pro Pro Leu Glu Val Val Asp Thr	
2705 2710 2715	

aca gca agc aca aag agg cat ctc agg aca cgt gtg cag aag gta caa	8392
Thr Ala Ser Thr Lys Arg His Leu Arg Thr Arg Val Gln Lys Val Gln	
2720 2725 2730	
gta aaa gaa gag cct tca gca gtc aag ttc aca caa aca tca ggg gaa	8440
Val Lys Glu Glu Pro Ser Ala Val Lys Phe Thr Gln Thr Ser Gly Glu	
2735 2740 2745	
acc acg gat gca gac aaa gaa cca gca ggt gaa gat aaa ggc atc aaa	8488
Thr Thr Asp Ala Asp Lys Glu Pro Ala Gly Glu Asp Lys Gly Ile Lys	
2750 2755 2760	
gca ttg aag gaa tct gca aaa cag aca ccg gct cca gca gca agt gta	8536
Ala Leu Lys Glu Ser Ala Lys Gln Thr Pro Ala Pro Ala Ala Ser Val	
2765 2770 2775 2780	
act ggc agc agg aga cgg cca aga gca ccc agg gaa agt gcc caa gcc	8584
Thr Gly Ser Arg Arg Arg Pro Arg Ala Pro Arg Glu Ser Ala Gln Ala	
2785 2790 2795	
ata gaa gac cta gct ggc ttc aaa gac cca gca gca ggt cac act gaa	8632
Ile Glu Asp Leu Ala Gly Phe Lys Asp Pro Ala Ala Gly His Thr Glu	
2800 2805 2810	
gaa tca atg act gat gac aaa acc act aaa ata ccc tgc aaa tca tca	8680
Glu Ser Met Thr Asp Asp Lys Thr Thr Lys Ile Pro Cys Lys Ser Ser	
2815 2820 2825	
cca gaa cta gaa gac acc gca aca agc tca aag aga cgg ccc agg aca	8728
Pro Glu Leu Glu Asp Thr Ala Thr Ser Ser Lys Arg Arg Pro Arg Thr	
2830 2835 2840	
cgt gcc cag aaa gta gaa gtg aag gag gag ctg tta gca gtt ggc aag	8776
Arg Ala Gln Lys Val Glu Val Lys Glu Glu Leu Leu Ala Val Gly Lys	
2845 2850 2855 2860	
ctc aca caa acc tca ggg gag acc acg cac acc gac aaa gag ccg gta	8824
Leu Thr Gln Thr Ser Gly Glu Thr Thr His Thr Asp Lys Glu Pro Val	
2865 2870 2875	
ggt gag ggc aaa ggc acg aaa gca ttt aag caa cct gca aag cgg aac	8872
Gly Glu Gly Lys Gly Thr Lys Ala Phe Lys Gln Pro Ala Lys Arg Asn	
2880 2885 2890	
gtg gac gca gaa gat gta att ggc agc agg aga cag cca aga gca cct	8920
Val Asp Ala Glu Asp Val Ile Gly Ser Arg Arg Gln Pro Arg Ala Pro	
2895 2900 2905	
aag gaa aag gcc caa ccc ctg gaa gac ctg gcc agc ttc caa gag ctc	8968
Lys Glu Lys Ala Gln Pro Leu Glu Asp Leu Ala Ser Phe Gln Glu Leu	

2910	2915	2920	
tct caa aca cca ggc cac act gag gaa ctg gca aat ggt gct gct gat			9016
Ser Gln Thr Pro Gly His Thr Glu Glu Leu Ala Asn Gly Ala Ala Asp			
2925	2930	2935	2940
agc ttt aca agc gct cca aag caa aca cct gac agt gga aaa cct cta			9064
Ser Phe Thr Ser Ala Pro Lys Gln Thr Pro Asp Ser Gly Lys Pro Leu			
	2945	2950	2955
aaa ata tcc aga aga gtt ctt cgg gcc cct aaa gta gaa ccc gtg gga			9112
Lys Ile Ser Arg Arg Val Leu Arg Ala Pro Lys Val Glu Pro Val Gly			
	2960	2965	2970
gac gtg gta agc acc aga gac cct gta aaa tca caa agc aaa agc aac			9160
Asp Val Val Ser Thr Arg Asp Pro Val Lys Ser Gln Ser Lys Ser Asn			
	2975	2980	2985
act tcc ctg ccc cca ctg ccc ttc aag agg gga ggt ggc aaa gat gga			9208
Thr Ser Leu Pro Pro Leu Pro Phe Lys Arg Gly Gly Gly Lys Asp Gly			
	2990	2995	3000
agc gtc acg gga acc aag agg ctg cgc tgc atg cca gca cca gag gaa			9256
Ser Val Thr Gly Thr Lys Arg Leu Arg Cys Met Pro Ala Pro Glu Glu			
3005	3010	3015	3020
att gtg gag gag ctg cca gcc agc aag aag cag agg gtt gct ccc agg			9304
Ile Val Glu Glu Leu Pro Ala Ser Lys Lys Gln Arg Val Ala Pro Arg			
	3025	3030	3035
gca aga ggc aaa tca tcc gaa ccc gtg gtc atc atg aag aga agt ttg			9352
Ala Arg Gly Lys Ser Ser Glu Pro Val Val Ile Met Lys Arg Ser Leu			
	3040	3045	3050
agg act tct gca aaa aga att gaa cct gcg gaa gag ctg aac agc aac			9400
Arg Thr Ser Ala Lys Arg Ile Glu Pro Ala Glu Glu Leu Asn Ser Asn			
	3055	3060	3065
gac atg aaa acc aac aaa gag gaa cac aaa tta caa gac tcg gtc cct			9448
Asp Met Lys Thr Asn Lys Glu Glu His Lys Leu Gln Asp Ser Val Pro			
	3070	3075	3080
gaa aat aag gga ata tcc ctg cgc tcc aga cgc caa gat aag act gag			9496
Glu Asn Lys Gly Ile Ser Leu Arg Ser Arg Arg Gln Asp Lys Thr Glu			
3085	3090	3095	3100
gca gaa cag caa ata act gag gtc ttt gta tta gca gaa aga ata gaa			9544
Ala Glu Gln Gln Ile Thr Glu Val Phe Val Leu Ala Glu Arg Ile Glu			
	3105	3110	3115
ata aac aga aat gaa aag aag ccc atg aag acc tcc cca gag atg gac			9592

Ile Asn Arg Asn Glu Lys Lys Pro Met Lys Thr Ser Pro Glu Met Asp	
3120 3125 3130	
att cag aat cca gat gat gga gcc cgg aaa ccc ata cct aga gac aaa	9640
Ile Gln Asn Pro Asp Asp Gly Ala Arg Lys Pro Ile Pro Arg Asp Lys	
3135 3140 3145	
gtc act gag aac aaa agg tgc ttg agg tct gct aga cag aat gag agc	9688
Val Thr Glu Asn Lys Arg Cys Leu Arg Ser Ala Arg Gln Asn Glu Ser	
3150 3155 3160	
tcc cag cct aag gtg gca gag gag agc gga ggg cag aag agt gcg aag	9736
Ser Gln Pro Lys Val Ala Glu Glu Ser Gly Gly Gln Lys Ser Ala Lys	
3165 3170 3175 3180	
gtt ctc atg cag aat cag aaa ggg aaa gga gaa gca gga aat tca gac	9784
Val Leu Met Gln Asn Gln Lys Gly Lys Gly Glu Ala Gly Asn Ser Asp	
3185 3190 3195	
tcc atg tgc ctg aga tca aga aag aca aaa agc cag cct gca gca agc	9832
Ser Met Cys Leu Arg Ser Arg Lys Thr Lys Ser Gln Pro Ala Ala Ser	
3200 3205 3210	
act ttg gag agc aaa tct gtg cag aga gta acg cgg agt gtc aag agg	9880
Thr Leu Glu Ser Lys Ser Val Gln Arg Val Thr Arg Ser Val Lys Arg	
3215 3220 3225	
tgt gca gaa aat cca aag aag gct gag gac aat gtg tgt gtc aag aaa	9928
Cys Ala Glu Asn Pro Lys Lys Ala Glu Asp Asn Val Cys Val Lys Lys	
3230 3235 3240	
ata aca acc aga agt cat agg gac agt gaa gat att tgacagaaaa	9974
Ile Thr Thr Arg Ser His Arg Asp Ser Glu Asp Ile	
3245 3250 3255	
atcgaactgg gaaaaatata ataaagttag ttttgtgata agttctagtg cagtttttgt	10034
cataaattac aagtgaattc tgtaagtaag gctgtcagtc tgcttaaggg aagaaaactt	10094
tggatttgct gggctctgaat cggcttcata aactccactg ggagcactgc tgggctcctg	10154
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agctttgcag aatgaagcct tgaggtctgt caccaccac agccacccta cagcagcctt	10274
aactgtgaca cttgccacac tgtgtcgtcg tttgtttgcc tatgttctcc agggcacggt	10334
ggcaggaaca actatcctcg tctgtcccaa cactgagcag gcactcggta aacacgaatg	10394
aatggataag cgcacggatg aatggagctt acaagatctg tctttccaat ggccgggggc	10454

atttgggtccc caaathtaagg ctattggaca tctgcacagg acagtccctat ttttgatgtc 10514
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<210> 2

<211> 3256

<212> PRT

<213> Homo sapiens

<400> 2

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Gly	Pro	His	Phe	Pro	Leu	Ser	Leu	Ser	Thr	Cys	Leu	Phe	Gly	Arg	Gly	
		20						25					30			
Ile	Glu	Cys	Asp	Ile	Arg	Ile	Gln	Leu	Pro	Val	Val	Ser	Lys	Gln	His	
		35					40					45				
Cys	Lys	Val	Glu	Ile	His	Glu	Gln	Glu	Ala	Ile	Leu	His	Asn	Phe	Ser	
	50					55					60					
Ser	Thr	Asn	Pro	Thr	Gln	Val	Asn	Gly	Ser	Val	Ile	Asp	Glu	Pro	Val	
65					70					75					80	
Arg	Leu	Lys	His	Gly	Asp	Val	Ile	Thr	Ile	Ile	Asp	Arg	Ser	Phe	Arg	
				85					90					95		
Tyr	Glu	Asn	Glu	Ser	Leu	Gln	Asn	Gly	Arg	Lys	Ser	Thr	Glu	Phe	Pro	
		100						105					110			
Arg	Lys	Ile	Arg	Glu	Gln	Glu	Pro	Ala	Arg	Arg	Val	Ser	Arg	Ser	Ser	
		115					120					125				
Phe	Ser	Ser	Asp	Pro	Asp	Glu	Lys	Ala	Gln	Asp	Ser	Lys	Ala	Tyr	Ser	
130						135					140					

Lys	Ile	Thr	Glu	Gly	Lys	Val	Ser	Gly	Asn	Pro	Gln	Val	His	Ile	Lys	145	150	155	160
Asn	Val	Lys	Glu	Asp	Ser	Thr	Ala	Asp	Asp	Ser	Lys	Asp	Ser	Val	Ala	165	170	175	
Gln	Gly	Thr	Thr	Asn	Val	His	Ser	Ser	Glu	His	Ala	Gly	Arg	Asn	Gly	180	185	190	
Arg	Asn	Ala	Ala	Asp	Pro	Ile	Ser	Gly	Asp	Phe	Lys	Glu	Ile	Ser	Ser	195	200	205	
Val	Lys	Leu	Val	Ser	Arg	Tyr	Gly	Glu	Leu	Lys	Ser	Val	Pro	Thr	Thr	210	215	220	
Gln	Cys	Leu	Asp	Asn	Ser	Lys	Lys	Asn	Glu	Ser	Pro	Phe	Trp	Lys	Leu	225	230	235	240
Tyr	Glu	Ser	Val	Lys	Lys	Glu	Leu	Asp	Val	Lys	Ser	Gln	Lys	Glu	Asn	245	250	255	
Val	Leu	Gln	Tyr	Cys	Arg	Lys	Ser	Gly	Leu	Gln	Thr	Asp	Tyr	Ala	Thr	260	265	270	
Glu	Lys	Glu	Ser	Ala	Asp	Gly	Leu	Gln	Gly	Glu	Thr	Gln	Leu	Leu	Val	275	280	285	
Ser	Arg	Lys	Ser	Arg	Pro	Lys	Ser	Gly	Gly	Ser	Gly	His	Ala	Val	Ala	290	295	300	
Glu	Pro	Ala	Ser	Pro	Glu	Gln	Glu	Leu	Asp	Gln	Asn	Lys	Gly	Lys	Gly	305	310	315	320
Arg	Asp	Val	Glu	Ser	Val	Gln	Thr	Pro	Ser	Lys	Ala	Val	Gly	Ala	Ser	325	330	335	
Phe	Pro	Leu	Tyr	Glu	Pro	Ala	Lys	Met	Lys	Thr	Pro	Val	Gln	Tyr	Ser	340	345	350	
Gln	Gln	Gln	Asn	Ser	Pro	Gln	Lys	His	Lys	Asn	Lys	Asp	Leu	Tyr	Thr	355	360	365	
Thr	Gly	Arg	Arg	Glu	Ser	Val	Asn	Leu	Gly	Lys	Ser	Glu	Gly	Phe	Lys	370	375	380	
Ala	Gly	Asp	Lys	Thr	Leu	Thr	Pro	Arg	Lys	Leu	Ser	Thr	Arg	Asn	Arg	385	390	395	400
Thr	Pro	Ala	Lys	Val	Glu	Asp	Ala	Ala	Asp	Ser	Ala	Thr	Lys	Pro	Glu	405	410	415	

Asn	Leu	Ser	Ser	Lys	Thr	Arg	Gly	Ser	Ile	Pro	Thr	Asp	Val	Glu	Val	420	425	430	
Leu	Pro	Thr	Glu	Thr	Glu	Ile	His	Asn	Glu	Pro	Phe	Leu	Thr	Leu	Trp	435	440	445	
Leu	Thr	Gln	Val	Glu	Arg	Lys	Ile	Gln	Lys	Asp	Ser	Leu	Ser	Lys	Pro	450	455	460	
Glu	Lys	Leu	Gly	Thr	Thr	Ala	Gly	Gln	Met	Cys	Ser	Gly	Leu	Pro	Gly	465	470	475	480
Leu	Ser	Ser	Val	Asp	Ile	Asn	Asn	Phe	Gly	Asp	Ser	Ile	Asn	Glu	Ser	485	490	495	
Glu	Gly	Ile	Pro	Leu	Lys	Arg	Arg	Arg	Val	Ser	Phe	Gly	Gly	His	Leu	500	505	510	
Arg	Pro	Glu	Leu	Phe	Asp	Glu	Asn	Leu	Pro	Pro	Asn	Thr	Pro	Leu	Lys	515	520	525	
Arg	Gly	Glu	Ala	Pro	Thr	Lys	Arg	Lys	Ser	Leu	Val	Met	His	Thr	Pro	530	535	540	
Pro	Val	Leu	Lys	Lys	Ile	Ile	Lys	Glu	Gln	Pro	Gln	Pro	Ser	Gly	Lys	545	550	555	560
Gln	Glu	Ser	Gly	Ser	Glu	Ile	His	Val	Glu	Val	Lys	Ala	Gln	Ser	Leu	565	570	575	
Val	Ile	Ser	Pro	Pro	Ala	Pro	Ser	Pro	Arg	Lys	Thr	Pro	Val	Ala	Ser	580	585	590	
Asp	Gln	Arg	Arg	Arg	Ser	Cys	Lys	Thr	Ala	Pro	Ala	Ser	Ser	Ser	Lys	595	600	605	
Ser	Gln	Thr	Glu	Val	Pro	Lys	Arg	Gly	Gly	Glu	Arg	Val	Ala	Thr	Cys	610	615	620	
Leu	Gln	Lys	Arg	Val	Ser	Ile	Ser	Arg	Ser	Gln	His	Asp	Ile	Leu	Gln	625	630	635	640
Met	Ile	Cys	Ser	Lys	Arg	Arg	Ser	Gly	Ala	Ser	Glu	Ala	Asn	Leu	Ile	645	650	655	
Val	Ala	Lys	Ser	Trp	Ala	Asp	Val	Val	Lys	Leu	Gly	Ala	Lys	Gln	Thr	660	665	670	
Gln	Thr	Lys	Val	Ile	Lys	His	Gly	Pro	Gln	Arg	Ser	Met	Asn	Lys	Arg	675	680	685	

Gln 690	Arg	Arg	Pro	Ala	Thr	Pro 695	Lys	Lys	Pro	Val	Gly 700	Glu	Val	His	Ser
Gln 705	Phe	Ser	Thr	Gly	His 710	Ala	Asn	Ser	Pro	Cys 715	Thr	Ile	Ile	Ile	Gly 720
Lys	Ala	His	Thr	Glu 725	Lys	Val	His	Val	Pro 730	Ala	Arg	Pro	Tyr	Arg 735	Val
Leu	Asn	Asn	Phe	Ile	Ser	Asn	Gln	Lys 745	Met	Asp	Phe	Lys	Glu 750	Asp	Leu
Ser	Gly	Ile 755	Ala	Glu	Met	Phe	Lys 760	Thr	Pro	Val	Lys	Glu 765	Gln	Pro	Gln
Leu	Thr 770	Ser	Thr	Cys	His	Ile 775	Ala	Ile	Ser	Asn	Ser 780	Glu	Asn	Leu	Leu
Gly 785	Lys	Gln	Phe	Gln	Gly 790	Thr	Asp	Ser	Gly	Glu 795	Glu	Pro	Leu	Leu	Pro 800
Thr	Ser	Glu	Ser	Phe 805	Gly	Gly	Asn	Val	Phe 810	Phe	Ser	Ala	Gln	Asn 815	Ala
Ala	Lys	Gln	Pro 820	Ser	Asp	Lys	Cys	Ser 825	Ala	Ser	Pro	Pro	Leu 830	Arg	Arg
Gln	Cys	Ile 835	Arg	Glu	Asn	Gly	Asn 840	Val	Ala	Lys	Thr	Pro 845	Arg	Asn	Thr
Tyr 850	Lys	Met	Thr	Ser	Leu	Glu 855	Thr	Lys	Thr	Ser	Asp 860	Thr	Glu	Thr	Glu
Pro 865	Ser	Lys	Thr	Val	Ser 870	Thr	Val	Asn	Arg	Ser 875	Gly	Arg	Ser	Thr	Glu 880
Phe	Arg	Asn	Ile 885	Gln	Lys	Leu	Pro	Val	Glu 890	Ser	Lys	Ser	Glu	Glu 895	Thr
Asn	Thr	Glu	Ile 900	Val	Glu	Cys	Ile	Leu 905	Lys	Arg	Gly	Gln	Lys 910	Ala	Thr
Leu	Leu	Gln 915	Gln	Arg	Arg	Glu	Gly 920	Glu	Met	Lys	Glu	Ile 925	Glu	Arg	Pro
Phe	Glu 930	Thr	Tyr	Lys	Glu	Asn 935	Ile	Glu	Leu	Lys	Glu 940	Asn	Asp	Glu	Lys
Met 945	Lys	Ala	Met	Lys	Arg 950	Ser	Arg	Thr	Trp	Gly 955	Gln	Lys	Cys	Ala	Pro 960

Met	Ser	Asp	Leu	Thr	Asp	Leu	Lys	Ser	Leu	Pro	Asp	Thr	Glu	Leu	Met	965	970	975
Lys	Asp	Thr	Ala	Arg	Gly	Gln	Asn	Leu	Leu	Gln	Thr	Gln	Asp	His	Ala	980	985	990
Lys	Ala	Pro	Lys	Ser	Glu	Lys	Gly	Lys	Ile	Thr	Lys	Met	Pro	Cys	Gln	995	1000	1005
Ser	Leu	Gln	Pro	Glu	Pro	Ile	Asn	Thr	Pro	Thr	His	Thr	Lys	Gln	Gln	1010	1015	1020
Leu	Lys	Ala	Ser	Leu	Gly	Lys	Val	Gly	Val	Lys	Glu	Glu	Leu	Leu	Ala	1025	1030	1035
Val	Gly	Lys	Phe	Thr	Arg	Thr	Ser	Gly	Glu	Thr	Thr	His	Thr	His	Arg	1045	1050	1055
Glu	Pro	Ala	Gly	Asp	Gly	Lys	Ser	Ile	Arg	Thr	Phe	Lys	Glu	Ser	Pro	1060	1065	1070
Lys	Gln	Ile	Leu	Asp	Pro	Ala	Ala	Arg	Val	Thr	Gly	Met	Lys	Lys	Trp	1075	1080	1085
Pro	Arg	Thr	Pro	Lys	Glu	Glu	Ala	Gln	Ser	Leu	Glu	Asp	Leu	Ala	Gly	1090	1095	1100
Phe	Lys	Glu	Leu	Phe	Gln	Thr	Pro	Gly	Pro	Ser	Glu	Glu	Ser	Met	Thr	1105	1110	1115
Asp	Glu	Lys	Thr	Thr	Lys	Ile	Ala	Cys	Lys	Ser	Pro	Pro	Pro	Glu	Ser	1125	1130	1135
Val	Asp	Thr	Pro	Thr	Ser	Thr	Lys	Gln	Trp	Pro	Lys	Arg	Ser	Leu	Arg	1140	1145	1150
Lys	Ala	Asp	Val	Glu	Glu	Glu	Phe	Leu	Ala	Leu	Arg	Lys	Leu	Thr	Pro	1155	1160	1165
Ser	Ala	Gly	Lys	Ala	Met	Leu	Thr	Pro	Lys	Pro	Ala	Gly	Gly	Asp	Glu	1170	1175	1180
Lys	Asp	Ile	Lys	Ala	Phe	Met	Gly	Thr	Pro	Val	Gln	Lys	Leu	Asp	Leu	1185	1190	1195
Ala	Gly	Thr	Leu	Pro	Gly	Ser	Lys	Arg	Gln	Leu	Gln	Thr	Pro	Lys	Glu	1205	1210	1215
Lys	Ala	Gln	Ala	Leu	Glu	Asp	Leu	Ala	Gly	Phe	Lys	Glu	Leu	Phe	Gln	1220	1225	1230

Thr Pro Gly His Thr Glu Glu Leu Val Ala Ala Gly Lys Thr Thr Lys
1235 1240 1245

Ile Pro Cys Asp Ser Pro Gln Ser Asp Pro Val Asp Thr Pro Thr Ser
1250 1255 1260

Thr Lys Gln Arg Pro Lys Arg Ser Ile Arg Lys Ala Asp Val Glu Gly
1265 1270 1275 1280

Glu Leu Leu Ala Cys Arg Asn Leu Met Pro Ser Ala Gly Lys Ala Met
1285 1290 1295

His Thr Pro Lys Pro Ser Val Gly Glu Glu Lys Asp Ile Ile Ile Phe
1300 1305 1310

Val Gly Thr Pro Val Gln Lys Leu Asp Leu Thr Glu Asn Leu Thr Gly
1315 1320 1325

Ser Lys Arg Arg Pro Gln Thr Pro Lys Glu Glu Ala Gln Ala Leu Glu
1330 1335 1340

Asp Leu Thr Gly Phe Lys Glu Leu Phe Gln Thr Pro Gly His Thr Glu
1345 1350 1355 1360

Glu Ala Val Ala Ala Gly Lys Thr Thr Lys Met Pro Cys Glu Ser Ser
1365 1370 1375

Pro Pro Glu Ser Ala Asp Thr Pro Thr Ser Thr Arg Arg Gln Pro Lys
1380 1385 1390

Thr Pro Leu Glu Lys Arg Asp Val Gln Lys Glu Leu Ser Ala Leu Lys
1395 1400 1405

Lys Leu Thr Gln Thr Ser Gly Glu Thr Thr His Thr Asp Lys Val Pro
1410 1415 1420

Gly Gly Glu Asp Lys Ser Ile Asn Ala Phe Arg Glu Thr Ala Lys Gln
1425 1430 1435 1440

Lys Leu Asp Pro Ala Ala Ser Val Thr Gly Ser Lys Arg His Pro Lys
1445 1450 1455

Thr Lys Glu Lys Ala Gln Pro Leu Glu Asp Leu Ala Gly Trp Lys Glu
1460 1465 1470

Leu Phe Gln Thr Pro Val Cys Thr Asp Lys Pro Thr Thr His Glu Lys
1475 1480 1485

Thr Thr Lys Ile Ala Cys Arg Ser Gln Pro Asp Pro Val Asp Thr Pro
1490 1495 1500

Thr	Ser	Ser	Lys	Pro	Gln	Ser	Lys	Arg	Ser	Leu	Arg	Lys	Val	Asp	Val	1505	1510	1515	1520
Glu	Glu	Glu	Phe	Phe	Ala	Leu	Arg	Lys	Arg	Thr	Pro	Ser	Ala	Gly	Lys	1525	1530	1535	
Ala	Met	His	Thr	Pro	Lys	Pro	Ala	Val	Ser	Gly	Glu	Lys	Asn	Ile	Tyr	1540	1545	1550	
Ala	Phe	Met	Gly	Thr	Pro	Val	Gln	Lys	Leu	Asp	Leu	Thr	Glu	Asn	Leu	1555	1560	1565	
Thr	Gly	Ser	Lys	Arg	Arg	Leu	Gln	Thr	Pro	Lys	Glu	Lys	Ala	Gln	Ala	1570	1575	1580	
Leu	Glu	Asp	Leu	Ala	Gly	Phe	Lys	Glu	Leu	Phe	Gln	Thr	Arg	Gly	His	1585	1590	1595	1600
Thr	Glu	Glu	Ser	Met	Thr	Asn	Asp	Lys	Thr	Ala	Lys	Val	Ala	Cys	Lys	1605	1610	1615	
Ser	Ser	Gln	Pro	Asp	Leu	Asp	Lys	Asn	Pro	Ala	Ser	Ser	Lys	Arg	Arg	1620	1625	1630	
Leu	Lys	Thr	Ser	Leu	Gly	Lys	Val	Gly	Val	Lys	Glu	Glu	Leu	Leu	Ala	1635	1640	1645	
Val	Gly	Lys	Leu	Thr	Gln	Thr	Ser	Gly	Glu	Thr	Thr	His	Thr	His	Thr	1650	1655	1660	
Glu	Pro	Thr	Gly	Asp	Gly	Lys	Ser	Met	Lys	Ala	Phe	Met	Glu	Ser	Pro	1665	1670	1675	1680
Lys	Gln	Ile	Leu	Asp	Ser	Ala	Ala	Ser	Leu	Thr	Gly	Ser	Lys	Arg	Gln	1685	1690	1695	
Leu	Arg	Thr	Pro	Lys	Gly	Lys	Ser	Glu	Val	Pro	Glu	Asp	Leu	Ala	Gly	1700	1705	1710	
Phe	Ile	Glu	Leu	Phe	Gln	Thr	Pro	Ser	His	Thr	Lys	Glu	Ser	Met	Thr	1715	1720	1725	
Asn	Glu	Lys	Thr	Thr	Lys	Val	Ser	Tyr	Arg	Ala	Ser	Gln	Pro	Asp	Leu	1730	1735	1740	
Val	Asp	Thr	Pro	Thr	Ser	Ser	Lys	Pro	Gln	Pro	Lys	Arg	Ser	Leu	Arg	1745	1750	1755	1760
Lys	Ala	Asp	Thr	Glu	Glu	Glu	Phe	Leu	Ala	Phe	Arg	Lys	Gln	Thr	Pro	1765	1770	1775	

Ser	Ala	Gly	Lys	Ala	Met	His	Thr	Pro	Lys	Pro	Ala	Val	Gly	Glu	Glu	1780	1785	1790	
Lys	Asp	Ile	Asn	Thr	Phe	Leu	Gly	Thr	Pro	Val	Gln	Lys	Leu	Asp	Gln	1795	1800	1805	
Pro	Gly	Asn	Leu	Pro	Gly	Ser	Asn	Arg	Arg	Leu	Gln	Thr	Arg	Lys	Glu	1810	1815	1820	
Lys	Ala	Gln	Ala	Leu	Glu	Glu	Leu	Thr	Gly	Phe	Arg	Glu	Leu	Phe	Gln	1825	1830	1835	1840
Thr	Pro	Cys	Thr	Asp	Asn	Pro	Thr	Ala	Asp	Glu	Lys	Thr	Thr	Lys	Lys	1845	1850	1855	
Ile	Leu	Cys	Lys	Ser	Pro	Gln	Ser	Asp	Pro	Ala	Asp	Thr	Pro	Thr	Asn	1860	1865	1870	
Thr	Lys	Gln	Arg	Pro	Lys	Arg	Ser	Leu	Lys	Lys	Ala	Asp	Val	Glu	Glu	1875	1880	1885	
Glu	Phe	Leu	Ala	Phe	Arg	Lys	Leu	Thr	Pro	Ser	Ala	Gly	Lys	Ala	Met	1890	1895	1900	
His	Thr	Pro	Lys	Ala	Ala	Val	Gly	Glu	Glu	Lys	Asp	Ile	Asn	Thr	Phe	1905	1910	1915	1920
Val	Gly	Thr	Pro	Val	Glu	Lys	Leu	Asp	Leu	Leu	Gly	Asn	Leu	Pro	Gly	1925	1930	1935	
Ser	Lys	Arg	Arg	Pro	Gln	Thr	Pro	Lys	Glu	Lys	Ala	Lys	Ala	Leu	Glu	1940	1945	1950	
Asp	Leu	Ala	Gly	Phe	Lys	Glu	Leu	Phe	Gln	Thr	Pro	Gly	His	Thr	Glu	1955	1960	1965	
Glu	Ser	Met	Thr	Asp	Asp	Lys	Ile	Thr	Glu	Val	Ser	Cys	Lys	Ser	Pro	1970	1975	1980	
Gln	Pro	Asp	Pro	Val	Lys	Thr	Pro	Thr	Ser	Ser	Lys	Gln	Arg	Leu	Lys	1985	1990	1995	2000
Ile	Ser	Leu	Gly	Lys	Val	Gly	Val	Lys	Glu	Glu	Val	Leu	Pro	Val	Gly	2005	2010	2015	
Lys	Leu	Thr	Gln	Thr	Ser	Gly	Lys	Thr	Thr	Gln	Thr	His	Arg	Glu	Thr	2020	2025	2030	
Ala	Gly	Asp	Gly	Lys	Ser	Ile	Lys	Ala	Phe	Lys	Glu	Ser	Ala	Lys	Gln	2035	2040	2045	

Met Leu Asp Pro Ala Asn Tyr Gly Thr Gly Met Glu Arg Trp Pro Arg
2050 2055 2060

Thr Pro Lys Glu Glu Ala Gln Ser Leu Glu Asp Leu Ala Gly Phe Lys
2065 2070 2075 2080

Glu Leu Phe Gln Thr Pro Asp His Thr Glu Glu Ser Thr Thr Asp Asp
2085 2090 2095

Lys Thr Thr Lys Ile Ala Cys Lys Ser Pro Pro Pro Glu Ser Met Asp
2100 2105 2110

Thr Pro Thr Ser Thr Arg Arg Arg Pro Lys Thr Pro Leu Gly Lys Arg
2115 2120 2125

Asp Ile Val Glu Glu Leu Ser Ala Leu Lys Gln Leu Thr Gln Thr Thr
2130 2135 2140

His Thr Asp Lys Val Pro Gly Asp Glu Asp Lys Gly Ile Asn Val Phe
2145 2150 2155 2160

Arg Glu Thr Ala Lys Gln Lys Leu Asp Pro Ala Ala Ser Val Thr Gly
2165 2170 2175

Ser Lys Arg Gln Pro Arg Thr Pro Lys Gly Lys Ala Gln Pro Leu Glu
2180 2185 2190

Asp Leu Ala Gly Leu Lys Glu Leu Phe Gln Thr Pro Val Cys Thr Asp
2195 2200 2205

Lys Pro Thr Thr His Glu Lys Thr Thr Lys Ile Ala Cys Arg Ser Pro
2210 2215 2220

Gln Pro Asp Pro Val Gly Thr Pro Thr Ile Phe Lys Pro Gln Ser Lys
2225 2230 2235 2240

Arg Ser Leu Arg Lys Ala Asp Val Glu Glu Glu Ser Leu Ala Leu Arg
2245 2250 2255

Lys Arg Thr Pro Ser Val Gly Lys Ala Met Asp Thr Pro Lys Pro Ala
2260 2265 2270

Gly Gly Asp Glu Lys Asp Met Lys Ala Phe Met Gly Thr Pro Val Gln
2275 2280 2285

Lys Leu Asp Leu Pro Gly Asn Leu Pro Gly Ser Lys Arg Trp Pro Gln
2290 2295 2300

Thr Pro Lys Glu Lys Ala Gln Ala Leu Glu Asp Leu Ala Gly Phe Lys
2305 2310 2315 2320

Glu Leu Phe Gln Thr Pro Gly Thr Asp Lys Pro Thr Thr Asp Glu Lys	2325	2330	2335
Thr Thr Lys Ile Ala Cys Lys Ser Pro Gln Pro Asp Pro Val Asp Thr	2340	2345	2350
Pro Ala Ser Thr Lys Gln Arg Pro Lys Arg Asn Leu Arg Lys Ala Asp	2355	2360	2365
Val Glu Glu Glu Phe Leu Ala Leu Arg Lys Arg Thr Pro Ser Ala Gly	2370	2375	2380
Lys Ala Met Asp Thr Pro Lys Pro Ala Val Ser Asp Glu Lys Asn Ile	2385	2390	2395
Asn Thr Phe Val Glu Thr Pro Val Gln Lys Leu Asp Leu Leu Gly Asn	2405	2410	2415
Leu Pro Gly Ser Lys Arg Gln Pro Gln Thr Pro Lys Glu Lys Ala Glu	2420	2425	2430
Ala Leu Glu Asp Leu Val Gly Phe Lys Glu Leu Phe Gln Thr Pro Gly	2435	2440	2445
His Thr Glu Glu Ser Met Thr Asp Asp Lys Ile Thr Glu Val Ser Cys	2450	2455	2460
Lys Ser Pro Gln Pro Glu Ser Phe Lys Thr Ser Arg Ser Ser Lys Gln	2465	2470	2475
Arg Leu Lys Ile Pro Leu Val Lys Val Asp Met Lys Glu Glu Pro Leu	2485	2490	2495
Ala Val Ser Lys Leu Thr Arg Thr Ser Gly Glu Thr Thr Gln Thr His	2500	2505	2510
Thr Glu Pro Thr Gly Asp Ser Lys Ser Ile Lys Ala Phe Lys Glu Ser	2515	2520	2525
Pro Lys Gln Ile Leu Asp Pro Ala Ala Ser Val Thr Gly Ser Arg Arg	2530	2535	2540
Gln Leu Arg Thr Arg Lys Glu Lys Ala Arg Ala Leu Glu Asp Leu Val	2545	2550	2555
Asp Phe Lys Glu Leu Phe Ser Ala Pro Gly His Thr Glu Glu Ser Met	2565	2570	2575
Thr Ile Asp Lys Asn Thr Lys Ile Pro Cys Lys Ser Pro Pro Pro Glu	2580	2585	2590

Leu Thr Asp Thr Ala Thr Ser Thr Lys Arg Cys Pro Lys Thr Arg Pro		
2595	2600	2605
Arg Lys Glu Val Lys Glu Glu Leu Ser Ala Val Glu Arg Leu Thr Gln		
2610	2615	2620
Thr Ser Gly Gln Ser Thr His Thr His Lys Glu Pro Ala Ser Gly Asp		
2625	2630	2635 2640
Glu Gly Ile Lys Val Leu Lys Gln Arg Ala Lys Lys Lys Pro Asn Pro		
2645	2650	2655
Val Glu Glu Glu Pro Ser Arg Arg Arg Pro Arg Ala Pro Lys Glu Lys		
2660	2665	2670
Ala Gln Pro Leu Glu Asp Leu Ala Gly Phe Thr Glu Leu Ser Glu Thr		
2675	2680	2685
Ser Gly His Thr Gln Glu Ser Leu Thr Ala Gly Lys Ala Thr Lys Ile		
2690	2695	2700
Pro Cys Glu Ser Pro Pro Leu Glu Val Val Asp Thr Thr Ala Ser Thr		
2705	2710	2715 2720
Lys Arg His Leu Arg Thr Arg Val Gln Lys Val Gln Val Lys Glu Glu		
2725	2730	2735
Pro Ser Ala Val Lys Phe Thr Gln Thr Ser Gly Glu Thr Thr Asp Ala		
2740	2745	2750
Asp Lys Glu Pro Ala Gly Glu Asp Lys Gly Ile Lys Ala Leu Lys Glu		
2755	2760	2765
Ser Ala Lys Gln Thr Pro Ala Pro Ala Ala Ser Val Thr Gly Ser Arg		
2770	2775	2780
Arg Arg Pro Arg Ala Pro Arg Glu Ser Ala Gln Ala Ile Glu Asp Leu		
2785	2790	2795 2800
Ala Gly Phe Lys Asp Pro Ala Ala Gly His Thr Glu Glu Ser Met Thr		
2805	2810	2815
Asp Asp Lys Thr Thr Lys Ile Pro Cys Lys Ser Ser Pro Glu Leu Glu		
2820	2825	2830
Asp Thr Ala Thr Ser Ser Lys Arg Arg Pro Arg Thr Arg Ala Gln Lys		
2835	2840	2845
Val Glu Val Lys Glu Glu Leu Leu Ala Val Gly Lys Leu Thr Gln Thr		
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Ser Gly Glu Thr Thr His Thr Asp Lys Glu Pro Val Gly Glu Gly Lys			
2865	2870	2875	2880
Gly Thr Lys Ala Phe Lys Gln Pro Ala Lys Arg Asn Val Asp Ala Glu			
	2885	2890	2895
Asp Val Ile Gly Ser Arg Arg Gln Pro Arg Ala Pro Lys Glu Lys Ala			
	2900	2905	2910
Gln Pro Leu Glu Asp Leu Ala Ser Phe Gln Glu Leu Ser Gln Thr Pro			
	2915	2920	2925
Gly His Thr Glu Glu Leu Ala Asn Gly Ala Ala Asp Ser Phe Thr Ser			
	2930	2935	2940
Ala Pro Lys Gln Thr Pro Asp Ser Gly Lys Pro Leu Lys Ile Ser Arg			
	2945	2950	2955
Arg Val Leu Arg Ala Pro Lys Val Glu Pro Val Gly Asp Val Val Ser			
	2965	2970	2975
Thr Arg Asp Pro Val Lys Ser Gln Ser Lys Ser Asn Thr Ser Leu Pro			
	2980	2985	2990
Pro Leu Pro Phe Lys Arg Gly Gly Gly Lys Asp Gly Ser Val Thr Gly			
	2995	3000	3005
Thr Lys Arg Leu Arg Cys Met Pro Ala Pro Glu Glu Ile Val Glu Glu			
	3010	3015	3020
Leu Pro Ala Ser Lys Lys Gln Arg Val Ala Pro Arg Ala Arg Gly Lys			
	3025	3030	3035
Ser Ser Glu Pro Val Val Ile Met Lys Arg Ser Leu Arg Thr Ser Ala			
	3045	3050	3055
Lys Arg Ile Glu Pro Ala Glu Glu Leu Asn Ser Asn Asp Met Lys Thr			
	3060	3065	3070
Asn Lys Glu Glu His Lys Leu Gln Asp Ser Val Pro Glu Asn Lys Gly			
	3075	3080	3085
Ile Ser Leu Arg Ser Arg Arg Gln Asp Lys Thr Glu Ala Glu Gln Gln			
	3090	3095	3100
Ile Thr Glu Val Phe Val Leu Ala Glu Arg Ile Glu Ile Asn Arg Asn			
	3105	3110	3115
Glu Lys Lys Pro Met Lys Thr Ser Pro Glu Met Asp Ile Gln Asn Pro			
	3125	3130	3135

Asp Asp Gly Ala Arg Lys Pro Ile Pro Arg Asp Lys Val Thr Glu Asn
3140 3145 3150

Lys Arg Cys Leu Arg Ser Ala Arg Gln Asn Glu Ser Ser Gln Pro Lys
3155 3160 3165

Val Ala Glu Glu Ser Gly Gly Gln Lys Ser Ala Lys Val Leu Met Gln
3170 3175 3180

Asn Gln Lys Gly Lys Gly Glu Ala Gly Asn Ser Asp Ser Met Cys Leu
3185 3190 3195 3200

Arg Ser Arg Lys Thr Lys Ser Gln Pro Ala Ala Ser Thr Leu Glu Ser
3205 3210 3215

Lys Ser Val Gln Arg Val Thr Arg Ser Val Lys Arg Cys Ala Glu Asn
3220 3225 3230

Pro Lys Lys Ala Glu Asp Asn Val Cys Val Lys Lys Ile Thr Thr Arg
3235 3240 3245

Ser His Arg Asp Ser Glu Asp Ile
3250 3255

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<212> DNA
<213> Artificial sequence

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<223> Description of the artificial sequence: start-2-anti
Synthetic oligonucleotide

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23

<210> 4
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<213> Artificial sequence

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Synthetic oligonucleotide

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23

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<213> Artificial sequence

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Synthetic oligonucleotide

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25